2019

An Analysis of the Impact of the Section 232 Steel and Aluminum Tariffs: Primary Metal Manufacturing Employment in 2016 Trump and Clinton Majority Counties

Sarah Malott

Claremont McKenna College

An Analysis of the Impact of the Section 232 Steel and Aluminum Tariffs: Primary Metal Manufacturing Employment in 2016 Trump and Clinton Majority Counties

Submitted to
Professor William Lincoln

By
Sarah Malott

For
Senior Thesis
Spring 2019
April 29, 2019

Acknowledgments

I would like to thank Professor Lincoln for his steadfast guidance and support through this entire thesis process. I am incredibly lucky to have gotten to work with someone so knowledgeable in the field of international economics. I would also like to thank Professor Kim who, although was not a formal reader of mine, helped to steer me in the right direction throughout his Research Seminar course. Another thank you must be given to the people who introduced me to the wonderfully messy world of international trade—Allan Christian, Kellie Holloway, and Scott Goddin of the U.S. Commercial Service. This thesis was inspired by the work I did last summer as an intern for the USCS.

Finally, I owe it to my family and friends for helping to shape me into the student and person I am today. Their unwavering love and compassion for me at every point during these last four years has been the most cherished part of my time at CMC.

Abstract

This paper examines the potential impact of the Section 232 Tariffs on Steel and Aluminum on employment using county-level data. This study finds that although employment has increased in steel and aluminum related manufacturing industries, it has decreased in a significant downstream industry of manufacturers of steel products. Furthermore, I analyzed the difference in employment trends between counties that voted majority Trump in the 2016 presidential election and counties that voted majority Clinton, and between counties that experienced marginal victories and counties that voted solidly Democrat or Republican. I find that Trump counties have experienced the impact of the tariffs more strongly than Clinton counties, whether positive or negative. Similarly, swing counties have seen a much larger positive trend in employment in the primary metal refinement and processing industries, and a much larger negative trend in steel product manufacturing from purchased steel compared to non-swing counties.

Table of Contents

I. Introduction

"Putting America First!"

On September 17, 2018, Donald Trump tweeted "Tariffs have put the U.S. in a very strong bargaining position, with Billions of Dollars, and Jobs, flowing into our Country – and yet cost increases have thus far been almost unnoticeable. If countries will not make fair deals with us, they will be "Tariffed!" (@realDonaldTrump). Trump's goal of returning manufacturing to American employees can best be summarized by his two 2016 presidential election campaign slogans— "Make America Great Again" and "America First." He ran on a platform of representing the disenfranchised, bringing strength back to traditionally "American" industries, and standing up to other economically powerful nations who threatened the U.S. hegemony in international trade. Two years into his term, on March 1, 2018, President Trump announced his intention to impose tariffs on steel and aluminum. He invoked Section 232 of the Trade Expansion Act of 1962 which authorizes the president to adjust specific imports from other countries if the importation "is in such quantities or under such circumstances as to threaten to impair the national security."

In this study, I analyze the impact of the Section 232 Steel and Aluminum Tariffs on primary metal manufacturing sub-industry employment in the United States. This will then allow me to explore whether there have been statistically significant differences in employment trends in counties whose popular vote was won by President Trump in 2016 versus those whose was won by Hillary Clinton. Finally, because of Trump's emphasis on protecting the fringe voters of America, I analyze the differences between counties

that had marginal victories and counties that had either a strong Democrat or strong GOP victory.

The Section 232 Tariffs on Steel and Aluminum were made effective less than one month after President Trump's announcement, setting into motion a 25% import duty on steel and a 10% import duty on aluminum. This quick turnaround simplifies analysis because the potential impacts of both the announcement and the actual implementation of the tariffs occur almost simultaneously. The EU, Canada, Mexico, Australia, Argentina, Brazil and South Korea were initially exempt from the tariffs, but as of June 1, 2018, the steel import duty applies to all countries of origin except Argentina, Australia, Brazil, and South Korea; the aluminum import duty applies to all countries of origin except Argentina and Australia. Although President Trump made his protectionist trade beliefs clear throughout his campaign and the first half of his presidential term, the magnitude of these tariffs came as a shock for many people around the world, but especially American importers of the two primary metals.

This was the second of six waves of tariffs that were passed in 2018, the first being the safeguard tariffs on washing machines and solar cells. This era of American trade has been categorized as a "trade war" because of the tit-for-tat retaliation that has taken place between the U.S. and its trading partners, most notably, China. Many retaliatory tariffs have been passed by trading partners of the U.S., including China, the EU, and NAFTA members, often with the intention of targeting Trump counties. For example, agriculture and automobile manufacturing, typically strongly Republican industries, have been largely impacted by these retaliatory tariffs (Parilla and Bouchet, 2018).

Why Tariffs on Steel and Aluminum?

Much of the rhetoric coming from the Trump administration regarding these tariffs focuses on national security. The White House hopes that enacting tariffs on some of the United States' most significant trading partners will demonstrate to the world that it will not tolerate unfair treatment that weaken the U.S. economically, such as export dumping. Trump also notes the potential of the tariffs to speed up the slow manufacturing employment growth that had occurred during the Obama era. Manufacturing is one of several industries that have not yet recovered from the 2008 financial crisis, during which it lost more than 15% of its employment (Hertz et al. 2014). Both Steel Mills and Aluminum Production employment are great examples of this stagnated growth, still well below their pre-recession levels, as seen in Figure 1 and Figure 2. In 2017, employment in Steel Mills was actually lower than it was at the end of the recession in 2009, despite having shown some signs of recovery in the early 2010s. Many people believe that this slow recovery is partly the result of the rise of extremely cheap goods imported from countries such as China, whose innovations in mass production have driven costs down immensely.

During his campaign tour in June 2016, Donald Trump gave a speech in a factory in Pennsylvania. He declared: "We are going to put American steel and aluminum back into the backbone of our country. This alone will create massive numbers of jobs, high-paying jobs, good jobs, not the jobs we have today, which everybody agrees are bad jobs. We're going to create massive numbers of good jobs." This gave hope to many individuals who had felt disenfranchised during the Obama era and were still feeling the sting of the recession. A significant aspect of Trump's ability to get re-elected in 2020

will depend on whether or not he followed through with this promise of revitalizing American manufacturing.

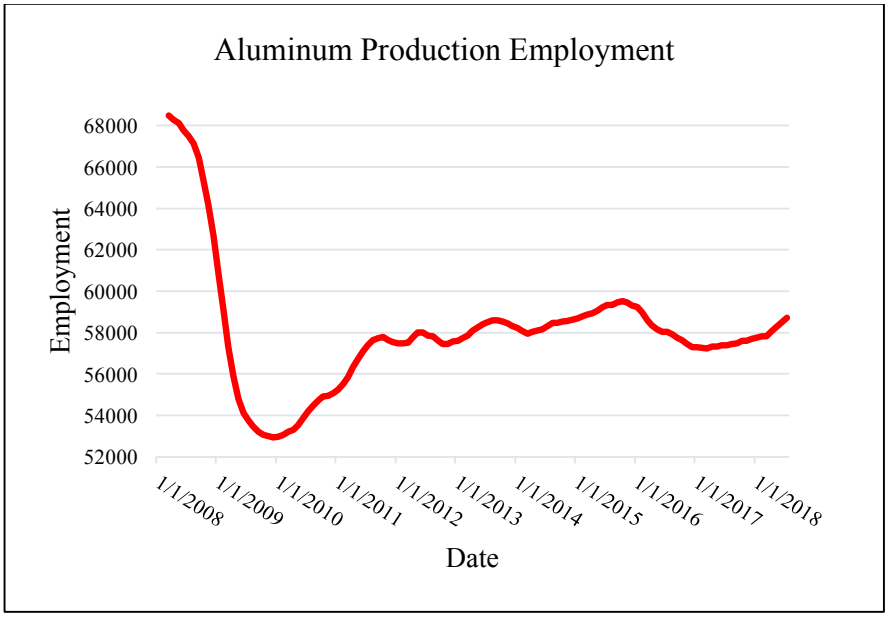


Figure 1: American Aluminum Production Employment (2013-2018)

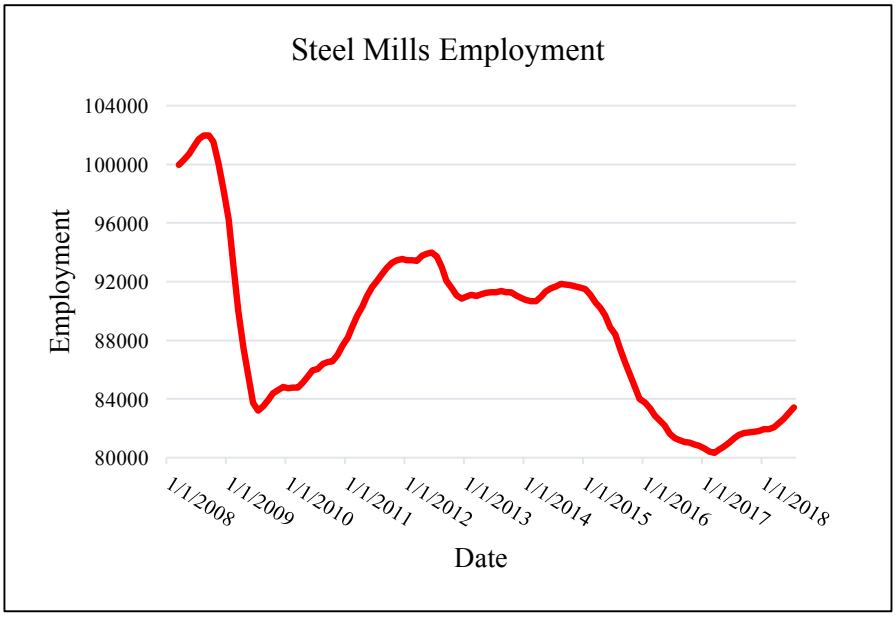


Figure 2: American Steel Mills Employment (2013-2018)

Despite President Trump's steadfast optimism, it was initially predicted that the tariffs might adversely affect employment in the United States because industries that require large amounts of steel and aluminum as inputs would face higher costs to production. Many people also compared this round of tariffs to the steel tariff passed by President George W. Bush in 2002, which was found to have caused significant employment loss in the U.S (Francois and Baughman, 2013). Tariffs have the potential to cause significant price increases because domestic producers no longer face competition from foreign producers. Figure 3 demonstrates the mechanism through which tariffs raise domestic prices.

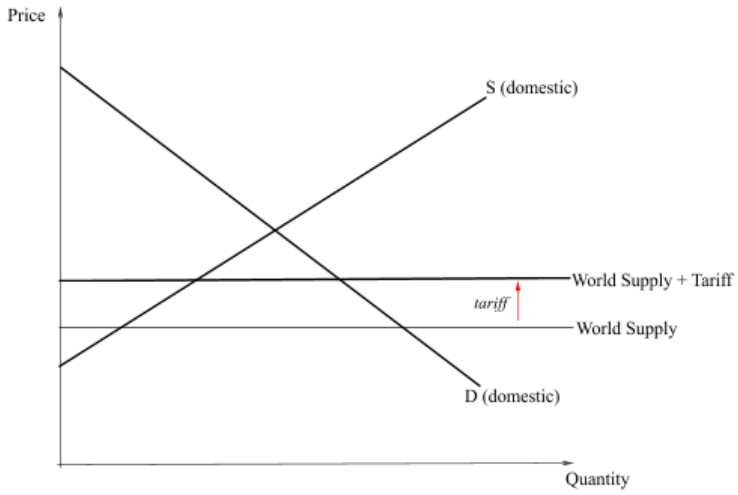


Figure 3: Impact of Tariffs on Domestic Prices

Early analysis of the tariffs also noted that the steel and aluminum manufacturing industries in the United States, as a whole, employ far fewer Americans than other manufacturing sectors, leading many to question why Trump would choose to focus on these industries. One possible explanation has to do with the fact that these industries are

historically "American," namely that they were critical sectors in the early industrial development of the nation. Furthermore, many of President Trump's supporters have backed his neo-mercantilist policies which stem from his slogan: "Put America First," partly because manufacturing has historically been concentrated in Republican counties.

In the case of steel and aluminum, China is one of the United States' largest competitors. In late 2018, the Pentagon concluded that China was deliberately dumping certain goods that are crucial for the manufacturing of American national defense equipment in order to undermine U.S. national security. (Seligman, 2018). For American firms that used steel and aluminum as inputs, these cheaper foreign goods were actually beneficial. However, with the tariffs now causing these previously cheap imports to become much more expensive in the United States and no longer giving the consumer a cheaper option, domestic producers can raise their own prices, which this study demonstrates has already begun to occur. These tariffs have also led to the passage of several rounds of retaliatory tariffs by China, targeting several significant industries in the U.S. such as agriculture.

Due to the highly politicized nature of these tariffs, the media immediately began following their impact. "One week after the Commerce Department recommended heavy tariffs on steel and aluminum in February, Mr. Czachor [CEO of the American Keg Company] gathered 10 of his 30 workers in a conference room at work and broke the news that they were being laid off" (WSJ, 2018). This is just one example of several companies to appear in the media following Trump's announcement of the tariffs that publicized potential layoffs due to the higher input costs. On the other hand, a study done by the Economic Policy Institute found that three aluminum smelters are re-opening and

22 new projects have been announced using significant amounts of aluminum (Scott, 2018). Anecdotally, the tariffs have made a significant impact on manufacturing firms, both positively and negatively, across the nation.

This example of the significant shift in American foreign policy reflects a larger trend in the global macro-political arena. The rise of several controversial, polarized leaders who are unafraid to challenge the status quo has led to an era of great uncertainty in international trade and investment. With the U.S. much less willing to act as the global hegemon under its "America First" prerogative, renegotiating its long standing trade partnerships, and standing up to what it sees as "bullies," the future of international trade remains unclear. Analysis of the welfare impact of these impending changes will critical in the coming years.

In Section II, I discuss the relevant literature regarding the quantification of the impact of tariffs throughout American history, and how this paper contributes to past studies. Section III summarizes the data sources and its key characteristics. In Section IV, I outline the methodology of the study. The results of the regression analysis are presented and discussed in Section V. Finally, Section VI concludes the paper with a discussion of the implications of the results on both American and international politics.

II. Literature

The tariffs enacted by the Trump Administration were implemented in 2018 so there is limited literature on their specific impact thus far. However, the history of tariffs in the United States begins close to the nation's own conception with the passage of the Tariff of 1789. Similar to the Trump administration's tariffs, the Tariff of 1789 immediately faced immense backlash. In 1893, William Hill wrote an article titled "Protective Purpose of the Tariff Act of 1789." He writes: "The manufacture of steel in America is in its infancy; but as all the materials necessary to make it are the produce of almost every state in the Union, and as the manufacture is already established and attended with considerable success, I deem it prudent to emancipate our country from the manacles in which she has been held by foreign manufacturers" (Hill, 1893). This argument is strikingly similar to ones used today by those in favor of the recent protectionist policies. From the Tariff Act of 1789 to the Section 232 Tariffs on Steel and Aluminum, the United States has gone through several different eras of import duties. However, rhetoric regarding the necessity of the tariffs have typically centered on both national security and needing to protect American industry from foreign competitors who have captured too great of a share of the international market.

The Trade and Tariff Act of 1984 is another example of a protectionist policy implemented by the United States government. Title VIII of the Act "provide[s] the President with authority to enforce bilateral export restraint arrangements, including the authority to deny entry of steel products" as well as "contains a 'sense of the Congress' provision calling for an import level for basic carbon steel products of between 17 and

20.2 percent." In a subsequent study, Tarr and Morkre (1984), for the Bureau of Economics Staff Report to the Federal Trade Commission, explore the aggregate costs of tariffs and import quotas, especially due to the Trade and Tariff Act. Using general equilibrium models, the estimated cost of the quota to the U.S. consumers was $1.1 billion and the cost to the U.S. Economy as a whole was $780,000 (Tarr and Morkre, 1984).

In 2002, invoking Section 201 of the 1974 Trade Act, President George W. Bush enacted a variety of tariffs on steel imports from all countries except for Canada, Israel, Jordan, and Mexico, ranging from 8 to 30%. These tariffs lasted exactly three years and one day. It was estimated that more American workers lost their jobs due to the tariffs than the number of people employed in steel manufacturing altogether (Francois and Baughman, 2013). In total, their study finds that nearly 200,000 Americans lost their jobs due to these tariffs. They explain that the reason so many manufacturing sub-industries were significantly impacted was because nearly 98% of the companies in the United States at the time employed less than 500 people. Small companies tend to be "price takers," meaning that they are subject to the will of the market. If input prices rise, they must either pass the higher prices onto the consumer, who may refuse to pay, or they must absorb the cost of the inputs themselves, while keeping prices fixed. Together, these effects may lead to decreased profit and decreased employment. Many scholars have questioned whether the United States is doomed to repeat its history.

In a preliminary study of the US Section 232 Steel and Aluminum Tariffs, Ciuriak and Xiao (2018) attempted to quantify the impact of the policy shock. Ciuriak and Xiao (2018) used a recursive-dynamic variant of the standard Global Trade Analysis Project

(GTAP) CGE model to assess the impacts of the policy shocks. The outcome estimates the potential job loss that they predicted would occur as firms had to adjust to the increased steel and aluminum prices. An estimated 22,700 job losses were predicted to occur, with the majority coming from unskilled labor (Ciuriak and Xiao, 2010). They also find that labor productivity in the U.S. would fall by about 0.05 percent.

Two recent NBER studies published in March 2019 analyze the welfare impact of the trade war to date. Amiti et al. (2019) concluded that there was "complete pass-through of the tariffs into domestic prices" and that "the full incidence of the tariff falls on domestic consumers, with a reduction in U.S. real income of $1.4 billion per month by the end of 2018." Another significant finding is that foreign exporters of steel and aluminum have not adjusted their prices lower to offset the additional cost of the tariffs to their consumers. As a result, steel and aluminum prices in the United States have remained high since mid-2018. Fajgelbaum et al. (2019) found that "the export supply of foreign varieties is horizontal, suggesting that U.S. consumers bear the incidence of the U.S. tariffs." They also find that the retaliatory tariffs passed by the United States' trading partners disproportionately targeted Republican-dominated industries, such as manufacturing and agriculture. This is a political strategy meant to hurt Trump in the places where it hurts him the most. Finally, Fajgelbaum et al. (2019) estimate that about $68.8 billion have been lost by the U.S. since the beginning of the trade war.

In this study, I will attempt to expand on past literature in quantifying the welfare impact of protectionist tariff policy in the United States by analyzing employment changes in steel and aluminum manufacturing sub-industries on a county level, rather than statewide or national level. Although there have been a small number of previous

studies attempting to quantify the impact of the tariffs, nearly all analysis has been done at the state level. However, some states may see great levels of variation in the employment trends between counties (especially larger states such as California and Texas) that, when analyzed at the state level, may overlook some critical changes that occur at a more disaggregated level. Large counties typically hold larger firms, who are both more likely to employ the majority of workers in a particular industry, and less likely to be impacted by the tariffs. Analysis at the county-level ensures that changes in smaller firms are not absorbed by the changes in the few larger firms. Furthermore, looking at the county level may be more useful for exploring the relationship between political majority, especially in swing counties, and level of impact from the tariffs.

The goal of this study is to assess whether the most recent tariffs passed by the Trump Administration achieved its goal of initiating the restoration of American employment in steel and aluminum manufacturing to its pre-recession levels. I will also look at the inherent ties between economic outcome and political affiliation. The highly contentious and polarized nature of the 2016 presidential election has lasted long into the Trump presidency, and is heavily manifested in reactions toward his protectionist trade policy. Many of Trump's supporters have staunchly backed the recent tariffs, but manufacturing employment is heavily comprised of Republican supporters. The results of this study will provide insight into whether President Trump's tariffs have had a negative or positive impact on primary metal manufacturing employment thus far.

III. Data

This study aims to explore whether the Section 232 tariffs on steel and aluminum have significantly impacted employment in certain manufacturing sub-industries, and whether the impact differs between Trump majority and Clinton majority counties. I compiled steel and aluminum PPI data from FRED. Using the Bureau of Labor Statistics' Quarterly Census of Employment and Wages, I compiled monthly employment data for each sub-industry in all 3,242 counties and county-equivalents in the United States from 2013-2018. I use the North American Industry Classification System (NAICS) to explore three different 4-digit sub-industries that are most likely to have been directly impacted by the tariffs.

The three main industries involved in the manufacturing of steel and aluminum products are Iron and Steel Mills and Ferroalloy Manufacturing (NAICS 3311), Steel Product Manufacturing from Purchased Steel (NAICS 3312), and Alumina and Aluminum Production and Processing (NAICS 3313). Steel Product Manufacturing from Purchased Steel involves the production of steel products such as sheets, wire, and tubes from purchased raw materials, while the other two sub-industries are involved in the initial refinement and processing of raw steel and aluminum. Therefore, it is the firms within NAICS 3311 that might be selling their products to the firms within NAICS 3312.

For each sub-industry, I required that a county have reported consecutive, non-zero monthly employment data over the span of the entire observation period. Table 1 lists the number of counties for each sub-industry that fulfill this requirement. Note that these three industries comprise a small subsection of counties and manufacturing

employment in the United States, which makes it interesting that President Trump chose to target them with his policy.

Table 1: Number of counties that employ in each sub-industry

Sub-Industry	*Number of Counties*
Iron and Steel Mills and Ferroalloy Mfg	459
Steel Product Mfg from Purchased Steel	674
Aluminum Processing and Production	122

The majority of counties in my data report fairly small employment numbers in each sub-industry. According to the Small Business Administration, 99.9% of businesses in the United States in 2014 were small business and nearly 50% of the private workforce was employed by small businesses. The SBA has placed the threshold at a maximum of 500-1500 employees for a manufacturing firm to be deemed a "small business." Smaller businesses are more susceptible to market fluctuations such as input price shocks. This means that these counties with low employment may be more strongly affected from the tariffs compared to the few counties that house larger firms, who do not necessarily need to absorb the higher input prices themselves.

The data from the 2016 presidential election comes from Tony McGovern (2017). He compiled this data from The Guardian and Townhall.com, two news service that posted the results of the election in real time. Data is available for each county and county-equivalent on the percentage of people that voted for each party, county characteristics such as average income, household size, demographic makeup, etc., as

well as whether the majority vote switched parties from 2012. Table 2 presents the percentage of counties within each sub-industry that voted for Trump in 2016. Counties with significant manufacturing employment as a proportion of their overall employment have a long history of voting Republican. Many of these counties are concentrated in the South and the Midwest in deeply red states. However, some of Trump's policies have not been targeting strongly Republican areas, but rather counties in the swing states. These votes are going to be the most crucial when Trump goes up for reelection in 2020, so it is in his best political interest to focus on garnering their support. I characterize swing counties as those with a margin of victory of less than or equal to 10%. In my data, 41% of the counties that employ these industries had marginal victories.

Table 2: Percentage of counties that voted for Trump in the 2016 election

Sub-Industry	*% of counties that voted for Trump*
Iron and Steel Mills and Ferroalloy Mfg	44.5%
Steel Product Mfg from Purchased Steel	36.5%
Aluminum Processing and Production	40.3%

The majority of employment in my data is concentrated in urban areas. The top three employers for Iron and Steel Mills and Ferroalloy Manufacturing are Wayne County, Michigan; Porter County, Indiana; and Jefferson County, Alabama (a century ago known as the "Pittsburgh of the South" given its rich history of steel production). Of these three counties, Wayne County and Jefferson County hold the state capitals and

voted Democrat. Only Porter County, a non-urban county, voted Republican. Steel Product Manufacturing from Purchased Steel displays a similar pattern within its top three employers—Cook County, Illinois; Mississippi County, Arkansas; and Harris County, Texas. Mississippi County is the only mainly rural county and it voted Republican in 2016. Aluminum Processing and Production also had one non-urban county within its top three employers, and it similarly voted for Trump. This is important to note because the majority of individuals employed in these industries that Trump aimed to protect work in Democrat counties.

IV. Methods

This study implements a fixed effects model for employment such that

$$(1) \qquad Y_{it} = \beta_0 + \beta_1 x_{it} + \cdots + \beta_k x_{kt} + \delta_2 T_2 + \cdots + \delta_t T_t + \alpha_i + e_{it}.$$

It is comprised by an unbalanced panel of 3,242 counties and county-equivalents. The outcome of interest is the natural log of employment and the covariates of the model include monthly national manufacturing employment levels and a dummy variable for the tariffs where

$$(2) \qquad x_{it} = \begin{cases} 0 \; if \; Date \; is \; March \; 2018 \; or \; before \\ 1 \; if \; Date \; is \; after \; March \; 2018 \end{cases}.$$

A fixed effects model can be used to determine the overall trend in employment over the last five years. In order to focus my results on relative changes, I will be taking the natural log of employment. Furthermore, I will use a dummy variable for the tariff, with each observation assuming a value of 1 if the month is post-March 2018. The same model can be utilized on a disaggregated county level to obtain individual coefficients for each county and county equivalent. Using controls such as overall manufacturing employment and GDP to reflect general economic conditions allows this study to isolate the potential effect of the tariffs. This is especially important because manufacturing, as a whole, has grown very strongly since President Trump began his term in 2017. The fixed effects model will account for average differences across counties in any observable or unobservable predictors.

An OLS regression can be run on the aggregated employment for counties that voted for Trump and counties that voted for Clinton. A Wald test for the null hypothesis

that the two coefficients on these regressions are equal is utilized to determine whether the two groups of counties have trended in a statistically significantly different way. This method will then be used to compare swing counties and non-swing counties. These two regressions will provide insight into whether Trump's supporters have benefited from the tariffs, thereby justifying their support of the tariffs, and whether the swing counties that President Trump focused on in his 2016 presidential campaign have seen increased employment. It is likely that Trump will continue to focus on the marginalized voters in the U.S. in the run-up to the 2020 election.

V. Results

Steel and Aluminum Prices

An OLS regression between steel PPI and the tariff dummy variable was performed to check that the tariff may have impacted the prices of steel and aluminum in the United States. Increased prices and an inelastic consumer market made up of metal product manufacturers might lead to increased profit for steel and aluminum manufacturers, and potentially increased employment. Downstream industries of steel and aluminum manufacturing may instead face the opposite as their inputs become costlier, and could be forced to lay off workers in response.

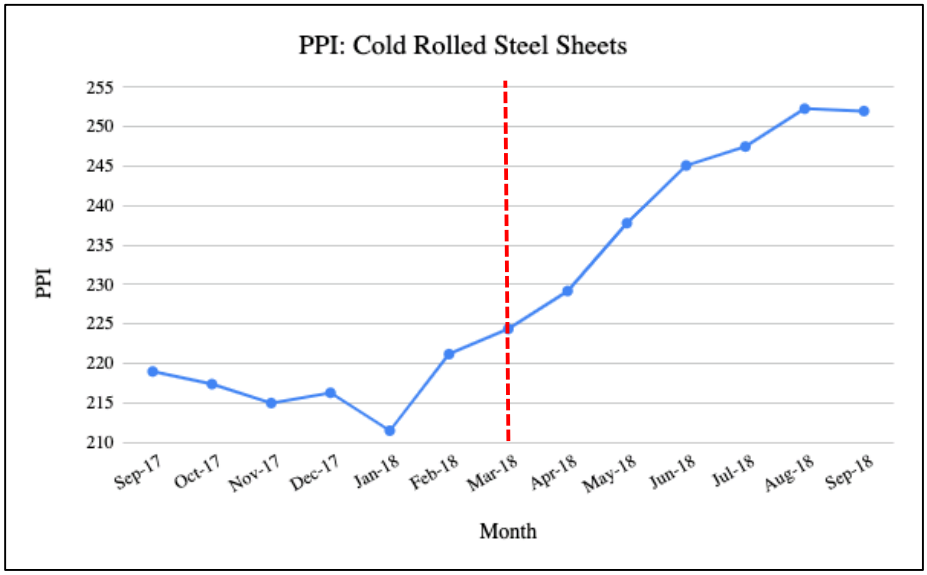
Table 3: Simple OLS Regression of Steel and Aluminum PPI on the Tariff Dummy

VARIABLES	(1) Steel	(2) Aluminum
Tariff Dummy	0.152***	0.140***
	(0.00133)	(0.0263)
Constant	5.345***	4.819***
	(0.000432)	(0.00814)
Observations	73	73

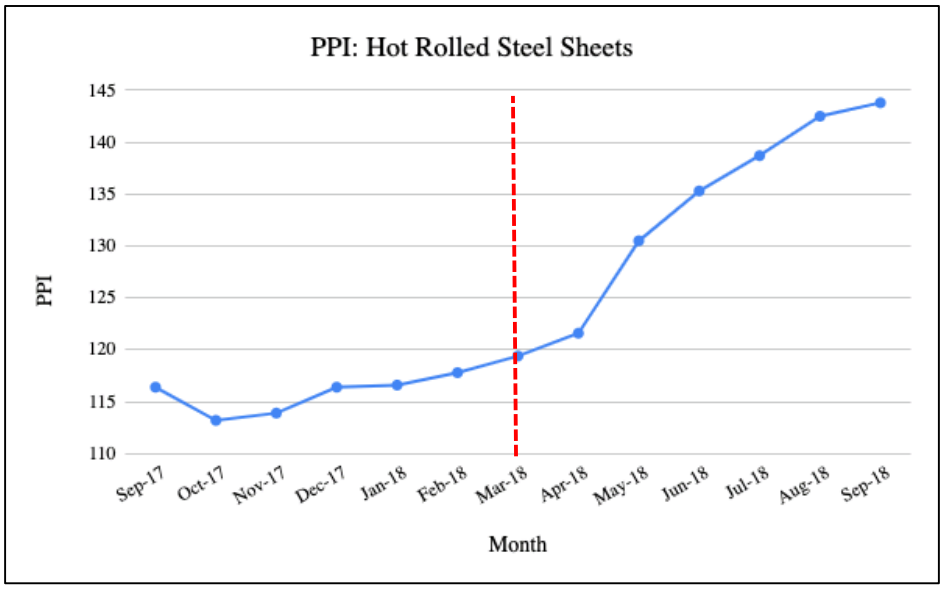
Note: This table presents the coefficient of a tariff dummy in a regression on log steel and aluminum monthly PPI. Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1.

As shown in Table 3, both steel and aluminum prices statistically significantly increased after March 2018. Average PPI for Cold and Hot Rolled Steel Sheets increased by 15.2% after the tariffs were implemented, while PPI for Aluminum Sheet and Strip increased by 14%. Figure 3 and Figure 4 show this sharp increase in price for the two most commonly used forms of steel input in manufacturing. We might expect steel prices

to have increased more than aluminum prices because a 25% import duty was placed on steel, compared to a smaller 10% duty on aluminum.



Figures 3: Producer Price Index by Commodity for Metals and Metal Products: Cold Rolled Steel Sheet and Strip



Figures 4: Producer Price Index by Commodity for Metals and Metal Products: Hot Rolled Steel Sheet and Strip

Employment

Table 4: Panel fixed effects regression

	Iron and Steel Mills		Steel Product Mfg from Purchased Steel		Aluminum Processing and Production	
	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Tariff Dummy	0.0656*	0.216*	-0.109**	-0.629**	0.132*	1.384
	(0.0387)	(0.123)	(0.0436)	(0.243)	(0.0678)	(8.438)
Log Mfg Employment		-1.797		6.220		15.10
		(81.28)		(58.12)		(84.32)
Constant	4.845***	26.11	5.267***	-68.33	5.037***	-173.4
	(0.0461)	(961.7)	(0.0316)	(687.6)	(0.0516)	(996.3)
Observations	2,538	2,538	3,414	3,414	1,716	1,716

Note: This table presents the coefficient of a tariff dummy in a regression on log employment data for NAICS 3311, 3312, and 3313. The tariff dummy assumes a 1 if the observation occurs after March 2018. Model 2 includes log manufacturing employment in the U.S. to control for overall trends in the industry. Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1.

Table 4 outlines the results of the initial fixed effects regression of log employment on the tariff dummy variable. At the 4-digit NAICS code level, there is a strong positive relationship between employment in both Steel Mills, and Aluminum Production and Processing. In Model 2, the former has seen an increase in employment of approximately 21.6%, significant at the 10% level. The coefficient on aluminum production was large and coefficient, however, it was not significant. These coefficients

demonstrate that the tariffs have been effective in sheltering American employment and potentially creating stronger growth in primary metal manufacturing in the United States. With the ability to increase prices to firms that are mostly small, and therefore price-taking, steel and aluminum manufacturers may have increased profits, higher production, and the ensuing growth to be able to employ a larger number of workers.

Steel Product Manufacturing from Purchased Steel, on the other hand, has seen a nearly 63% decrease in employment since the implementation of the tariffs, as seen in Column (4). This was significant at the 5% level. Higher input prices for these firms may mean that they have themselves have absorbed the costs or that they have passed the cost on to the consumer, presumably leading to decreased demand. Regardless of this choice, the firms in this sub-industry are likely have lost profit and therefore have been forced to lay off employees. The results of these three sub-industries align closely with the anticipated effects of the tariff. The 15% increase in steel input prices I found likely contributed to the job loss in this industry. It is likely that other sub-industries that significantly use steel and aluminum as inputs have faced similar decreases in employment.

Table 5: Panel fixed effects regression of Trump vs. Clinton counties

	Iron and Steel Mills		Steel Product Mfg from Purchased Steel		Aluminum Processing and Production	
	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	Trump	Clinton	Trump	Clinton	Trump	Clinton
Tariff Dummy	0.114***	0.029***	-0.129**	-0.064	0.197***	0.026
	(0.0302)	(0.002)	(0.0299)	(4.843)	(0.019)	(0.029)
Log Mfg Employment	-1.953***	-2.62***	-3.837***	-0.782***	2.682***	3.153***
	(0.492)	(0.357)	(0.34)	(0.154)	(0.216)	(0.296)
Constant	28.518	5.259***	50.853	14.769***	-26.713***	-31.974***
	(16.838)	(0.007)	(4.043)	(1.822)	(2.557)	(3.507)
Observations	2,538	2,538	3,414	3,414	1,716	1,716

Note: This table presents the coefficient of a tariff dummy in a regression on log employment data for NAICS 3311, 3312, and 3313 in counties that had a majority vote for Trump in the 2016 presidential election and counties that had a majority vote for Clinton. Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1.

Further analysis of the differences between the counties that voted for Trump versus the counties that voted for Clinton demonstrates a significant difference between the two groups. Table 5 displays the results of the Trump versus Clinton majority county analysis. Columns 1, 3 and 5 provide the results of a fixed effects regression of log employment on the tariff dummy variable of only Trump elected counties. Columns 2, 4, and 6 present the results for the Clinton majority counties. For both the steel and aluminum processing industries, Trump counties have had greater employment increases than Clinton counties. Steel mills employment in Trump counties has increased by about

11%, versus 3% in Clinton counties. Similarly, aluminum production employment has increased by nearly 20% in Trump counties. The coefficient for Clinton counties is smaller, but not significant. Interestingly, for Steel Product Manufacturing from Purchased Steel, the Trump counties have had a 13% decrease in employment, and Clinton counties, though not significant, have had a 6% decrease. Therefore, the Trump counties have experienced the change in employment in each sub-industry more strongly than the Clinton counties, whether positive or negative. The results for the Wald test for the post-estimation hypothesis that the coefficients of the Trump and Clinton counties are equal confirm that two groups of counties have trended in a statistically significantly different manner.

Table 6: Panel fixed effects regression of swing vs. non-swing counties

VARIABLES	(1) Swing	(2) Non-Swing
Tariff Dummy	0.192***	0.027***
	(0.041)	(0.009)
Log Mfg Employment	-4.347***	-1.122*
	(0.383)	(0.637)
Constant	57.14***	18.721**
	(4.544)	(7.568)

Note: This table presents the coefficient of a tariff dummy in a regression on log employment data for NAICS 3311, 3312, and 3313 in counties that had a marginal victory of ten percent or less (Column (1)) and counties that solidly voted Democrat or Republican (Column (2)). Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1.

An aggregated panel fixed effects regression of the swing versus non-swing counties reveals an overall larger increase in employment in counties that were marginally won in 2016. Swing counties have seen nearly a 20% increase, while non-swing counties have seen about a 3% increase, both significant at the 1% level. This is a significantly large difference between the two groups, possibly pointing to the high degree of interaction between political environment and economic outcome. A Wald test confirms that the swing vs. non-swing counties have trended in a statistically significantly different manner.

VI. Conclusion

This study found that the Section 232 Steel and Aluminum Tariffs have been successful in their first year at protecting American primary metal manufacturing, which the Trump administration has described as an industry that is critical to national security. Both Steel Mills and Aluminum Processing and Production have seen statistically significant increases in employment since the tariffs were made effective at the end of March 2018. In this regard, Trump's hope for assisting in the recovery of these industries has been successful.

However, this study also shows that the intermediary industry in metal product manufacturing, Steel Product Manufacturing from Purchased Steel, has seen statistically significant decreases in employment since March 2018. This was the greatest concern of many prominent economists, who noted the fact that U.S. firms that use steel and aluminum to make their products might be forced to charge more to their customers (Tangel and Simon, 2018). In industries with elastic demand, this could cause significant decreases in profit. Steel Product Manufacturing, on the other hand, has a very inelastic demand for the processed steel materials that they use as inputs, meaning that the firms must accept the higher prices being offered by steel and aluminum processors. Of the three industries in this study, Steel Product Manufacturing from Purchased Steel had, on average, the largest number of Americans employed in each year of the study.

I also found that counties that voted for President Trump in 2016 have seen larger increases, compared to Clinton counties, in both Steel Mills and Aluminum Processing and Production employment. On the other hand, Trump counties have also seen a larger decrease in employment in Steel Product Manufacturing from Purchased Steel compared

to the Democrat counties. This could be explained by several reasons. For example, the Trump counties hold the majority of smaller firms in the United States for these three sub-industries. Larger firms tend to be located in urban areas, which overwhelmingly vote Democrat. Small manufacturing firms typically have much smaller profit margins compared to their larger counterparts and, as a result, they are often at greater risk for macroeconomic shocks, including commodity price shocks. During the 2007-09 recession, small businesses were found to be more cyclically sensitive than large firms, thereby leading to a relatively larger decline in employment than for large businesses (Fort et al. 2012).

Finally, the results of the different trends between swing and non-swing counties shed light on the success of President Trump's focus on the marginal voters of the 2016 election. Swing counties, characterized in this study as counties in which the margin between Trump votes and Clinton votes was less than or equal to 10%, have had a statistically significantly larger increase in employment compared to solidly Trump or solidly Clinton counties. Presidential candidates often focus on the marginal votes because with the immense polarization in the United States, it is nearly impossible to switch solidly Democrat or Republican voters.

This paper provides several insights into the role of tariffs in today's national and international political landscape. Although they may be economically viable in terms of protecting the industries that produce the goods on which import duties rest, tariffs remain politically unpopular. One of the main tenets of neoliberal economic theory is that free trade is beneficial to all parties involved. Trump has challenged the status quo of the international system by re-negotiating trade partnerships such as the TPP and NAFTA

and by signaling to the rest of the world that the United States will no longer tolerate unfair trade practices such as dumping. Although Trump states that he is forming these policies with the U.S. economy in mind, the escalating trade war between the U.S. and its trading partners could weaken the global economy, as a whole. This, in turn, could incidentally impact the American economy.

Heading into the upcoming 2020 election, analysis of the economic outcome of the voters from 2016 will be critical. Trump will undoubtedly continue to tout the success of the Section 232 tariffs in sheltering primary metal manufacturing employment. However, many studies of similar past tariffs found significant decreases in employment in several downstream steel and aluminum industries that have had to face higher input prices. As this study analyzes employment just one year out from the implementation of this round of tariffs, future longer-term analysis will be extremely useful.

It is crucial now, more than ever, for individuals to take international politics into account when making political decisions. Foreign policy, especially trade, has long remained out of the interest and knowledge of most of the public, but citizens are now beginning to find their voice on foreign policy issues. Trump may believe that "trade wars are good, and easy to win" (@realDonaldTrump), however the convoluted nature of the administration's protectionist policies and the subsequent retaliatory measures taken by trade partners, or adversaries, of the United States significantly affects the welfare of American citizens.

VII. References

Amiti, Mary, Stephen J. Redding, and David Weinstein. "The Impact of the 2018 Trade War on U.S. Prices and Welfare." *National Bureau of Economic Research*.Working Paper 25672 (2019)Web.

Ciuriak, Dan, and Jingliang Xiao. "Quantifying the Impacts of the US Section 232 Steel and Aluminum Tariffs." *C.D. Howe Institute* (2018)Web.

de Melo, Jaime, and David Tarr. "Welfare Costs of U.S. Quotas on Textiles, Steel, and Autos." *Country Economics Department, The World Bank* (1988)Web.

Fajgelbaum, Pablo D., et al. "The Return to Protectionism." *National Bureau of Economic Research*.Working Paper 25638 (2019)Web.

Fort, Teresa, et al. "How Firms Respond to Business Cycles: The Role of Firm Age and Firm Size." *International Monetary Fund* (2012)Web.

Francois, Dr Joseph, and Laura M. Baughman. *Does Import Protection Save Jobs? the Estimated Impacts of Proposed Tariffs on Imports of U.S. Steel and Aluminum*. The Trade Partnership, 2018. Print.

---. "The Unintended Consequences of U.S. Steel Import Tariffs: A Quantification of the Impact during 2002." *Trade Partnership Worldwide* (2003)Web.

Hill, William. "Protective Purpose of the Tariff Act of 1789." *Journal of Political Economy* 2.1 (1893): 54-76. Web.

Parilla, Joseph, and Max Bouchet. "Which US communities are most affected by Chinese, EU, and NAFTA retaliatory tariffs?" *Brookings Institution.* October 2018. Web. <https://www.brookings.edu/research/which-us-communities-are-most-affected-by-chinese-eu-and-nafta-retaliatory-tariffs/>.

Scott, Robert E. *Aluminum Tariffs have Led to a Strong Recovery in Employment, Production, and Investment in Primary Aluminum and Downstream Industries*., 2018a. Print.

---. *Estimates of Jobs Lost and Economic Harm done by Steel and Aluminum Tariffs are Wildly Exaggerated*., 2018b. Print.

"Section 232 Tariffs on Aluminum and Steel: Duty on Imports of Steel and Aluminum Articles under Section 232 of the Trade Expansion Act of 1962."*U.S. Customs and Border Protection.* Web. <https://www.cbp.gov/trade/remedies/232-tariffs-aluminum-and-steel>.

Seligman, Lara. "Pentagon Accuses China of Dumping Products to Undermine U.S. Security." *Foreign Policy.* October 2, 2018. Web.

<https://foreignpolicy.com/2018/10/02/pentagon-accuses-china-of-dumping-products-to-undermine-us-security-rare-earth-minerals/>.

Tangel, Andrew, and Ruth Simon. "Steel Tariffs are Taxing some American Companies." *The Wall Street Journal,* June 12, 2018, Web. <https://www.wsj.com/articles/steel-tariffs-are-taxing-some-american-companies-1527940800>.

"Tariffs on steel and aluminum are creating some winners." *The Economist.* August 9, 2018. Web. <https://www.economist.com/finance-and-economics/2018/08/09/tariffs-on-steel-and-aluminium-are-creating-some-winners>.

Trade Expansion Act of 1962. Tran. Senate and House of Representatives of the United States of America in Congress. Public Law ed. 232 Vol. , 1962. Print.

"The Trump Tariff Layoffs Begin." *The Wall Street Journal.* March 16, 2018. Web. <https://www.wsj.com/articles/the-trump-tariff-layoffs-begin-1521241456?mod=searchresults&page=10&pos=4>.

Trump, Donald (@realDonaldTrump). "Tariffs have put the U.S. in a very strong bargaining position, with Billions of Dollars, and Jobs, flowing into our Country – and yet cost increases have thus far been almost unnoticeable. If countries will not make fair deals with us, they will be "Tariffed!"" September 17, 2018, 3:11 AM. Tweet.

Trump, Donald (@realDonaldTrump). "When a country (USA) is losing many billions of dollars on trade with virtually every country it does business with, trade wars are good, and easy to win. Example, when we are down $100 billion with a certain country and they get cute, don't trade anymore-we win big. It's easy!" March 2, 2018, 2:50 AM. Tweet.

Trump, Donald (@realDonaldTrump). "Tariffs are the greatest! Either a country which has treated the United States unfairly on Trade negotiates a fair deal, or it gets hit with Tariffs. It's as simple as that - and everybody's talking! Remember, we are the "piggy bank" that's being robbed. All will be Great!" July 24, 2018, 4:29 AM. Tweet.

"United States Small Business Profile." *U.S. Small Business Administration Office of Advocacy.* Web. <https://www.sba.gov/sites/default/files/advocacy/United_States_1.pdf>.

York, Erica. "Lessons from the 2002 Bush Steel Tariffs." *Tax Foundation.* March 12, 2018. Web. <https://taxfoundation.org/lessons-2002-bush-steel-tariffs/>.